

AMENDMENTS TO THE CLAIMS

Claims 1-26, 29-48, 53, 54, 56-67, and 73-95 remain as previously pending.

1. (Previously Presented) A system for creating aerial messages using a plurality of aircraft, the system comprising:

a logic and processing unit configured to provide a user interface for creating aerial messages using a plurality of aircraft, wherein the logic and processing unit is located in a master aircraft and sends data to and receives data from a master controller;

a master controller located in the master aircraft, wherein the master controller is a node on a wireless local area network (LAN) and is configured to transmit data over the LAN to a plurality of slave controllers and to receive data from each of the plurality of slave controllers;

a plurality of slave controllers, each slave controller designed to be located in one of a plurality of slave aircraft, wherein each of the slave controllers is a node on the wireless LAN and is configured to receive data from and transmit data to the master controller; and

a plurality of vapor puff creation systems, each vapor puff system designed to be located in one of the plurality of aircraft.

2. (Original) The system of Claim 1, wherein the master controller transmits data using a single frequency.

3. (Original) The system of Claim 1, wherein the master controller transmits data using unlicensed spread spectrum radio frequencies.

4. (Original) The system of Claim 3, wherein master controller transmits data using a frequency hopping spread spectrum system.

5. (Original) The system of Claim 3, wherein master controller transmits data using a direct sequence spread spectrum system.

6. (Original) The system of Claim 1, wherein each of the plurality of slave controllers is assigned a unique network address.

7. (Original) The system of Claim 6, wherein the unique network address of each slave controller is dynamically assigned by the logic and processing unit.

8. (Original) The system of Claim 1, wherein the plurality of aircraft fly in a frontline formation.

9. (Original) The system of Claim 1, wherein the plurality of aircraft fly in an echelon formation.

10. (Original) The system of Claim 1, wherein the plurality of aircraft fly in a V-shaped formation.

11. (Original) The system of Claim 1, wherein the plurality of aircraft fly in a wedge formation.

12. (Original) The system of Claim 1, wherein the plurality of aircraft fly in a vertically descending echelon formation.

13. (Original) The system of Claim 1, wherein the wireless LAN is an Ethernet network.

14. (Original) The system of Claim 1, wherein the logic and processing unit is further configured to determine when one of the plurality of slave aircraft travels out of a receiving range.

15. (Original) The system of Claim 14, wherein the logic and processing unit is further configured to notify a user of the computer when one of the plurality of slave aircraft travels out of the receiving range.

16. (Original) The system of Claim 1, wherein the aerial message is an alphanumeric message.

17. (Original) The system of Claim 1, wherein the aerial message is a graphical image.

18. (Original) The system of Claim 1, wherein the aerial message is a symbol.

19. (Previously Presented) A method for producing aerial messages, the method comprising:

transmitting puff data from a computer to a plurality of controllers located in a plurality of aircraft, the puff data including an indication of whether each of the plurality of aircraft is to emit a vapor puff; and

receiving status data at the computer from each of the plurality of controllers, the status data indicating whether the vapor puff was emitted by each of the plurality of aircraft.

20. (Original) The method of Claim 19, wherein the computer is a laptop device.

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21. (Original) The method of Claim 19, wherein the computer is a handheld device.

22. (Original) The method of Claim 19, wherein the puff data includes a time delay indicating how long to wait before emitting the vapor puff.

23. (Original) The method of Claim 19, wherein the puff data includes a duration measurement indicating how wide to make the vapor puff.

24. (Original) The method of Claim 19, wherein the vapor puff is a visible fog.

25. (Original) The method of Claim 24, wherein the vapor puff is colored.

26. (Original) The method of Claim 19, wherein the status data includes an indication of the vapor level remaining in a vapor tank located in each of the plurality of aircraft.

27.-28. Canceled

29. (Previously Presented) A system for producing aerial messages using a plurality of aircraft, the system comprising:

a main computer configured to provide a user interface for use in producing aerial messages using a plurality of aircraft, wherein the main computer operates as a node on a wireless network to transmit data to and receive data from a plurality of controllers;

a plurality of controllers, each controller designed to be located in one of the plurality of aircraft, wherein each controllers is a node on the wireless network and wherein each controllers is configured to process data received from the main computer; and

a plurality of vapor puff creation systems, each vapor puff creation system designed to be located in one of the plurality of aircraft.

30. (Original) The system of Claim 29, wherein the main computer is located in one of the plurality of aircraft.

31. (Original) The system of Claim 29, wherein the main computer is located at a ground control station.

32. (Original) A control box for controlling the emission of vapor material from an aircraft, the control box comprising:

a transceiver for transmitting data to and receiving data from one or more nodes on a wireless network, the received data including an indication of when an aircraft is to produce a vapor emission;

an antenna connected to the transceiver for use in transmitting and receiving the data from the one or more nodes on the wireless network;

a processor for processing the data received by the transceiver, the processor including firmware for determining from the received data when the aircraft is to produce the vapor emission;

a first relay capable of activating a vapor pump in response to a signal from the processor; and

a second relay for opening a solenoid valve in response to a signal from the processor.

33. (Original) The control box of Claim 32, wherein the processor is directly connected to the transceiver.

34. (Original) The control box of Claim 32, further comprising a hub connected to the transceiver and the processor, wherein the hub provides a connection between the transceiver and the processor.

35. (Previously Presented) The control box of Claim 34, wherein the hub further connects to a main computer, the main computer providing a user interface for the control box.

36. (Original) The control box of Claim 32, wherein the transceiver transmits data using unlicensed spread spectrum radio frequencies.

37. (Original) The control box of Claim 32, wherein the transceiver transmits data using radio frequencies in the 2.4 – 2.48 GHz range.

38. (Original) The control box of Claim 32, further comprising one or more light emitting diodes (LEDs), the one or more LEDs being activated by the processor in response to various events.

39. (Original) The control box of Claim 38, wherein one of the LEDs is activated when the transceiver is receiving data from the one or more nodes on the wireless network.

40. (Original) The control box of Claim 38, wherein one of the LEDs is activated when the pump is turned on.

41. (Original) The control box of Claim 38, wherein one of the LEDs is activated when the solenoid valve is open.

42. (Original) A system for creating aerial messages, the system comprising:
a graphical user interface configured to display one or more screens, wherein a user employs the displayed screens to create an aerial message;
a calculation module configured to calculate a number of vapor puffs required by one or more aircraft in creating the aerial message;
a database configured to store the aerial message;
a data packet generation module configured to generate data packets including portions of the aerial message; and
a simulation module configured to graphically simulate the creation of the aerial message.

43. (Original) The system of Claim 42, wherein the data packet generation module is further configured to transmit the data packets to one or more aircraft over a wireless network.

44. (Original) The system of Claim 42, wherein the simulation module is further configured to simulate the creation of the aerial message in real time as the one or more aircraft physically create the aerial message.

45. (Original) The system of Claim 42, wherein the database is further configured to store information about a plurality of aircraft used to create the aerial message.

46. (Original) A data format, stored in a computer readable medium, comprising:

an internet protocol (IP) address portion including an address associated with a particular aircraft on a wireless network;
a puff data portion including an indication of whether the particular aircraft is to produce a vapor puff;
a duration measurement portion including a measurement for how wide to make the vapor puff; and
a time delay measurement portion including a measurement for how long to wait before creating the vapor puff.

47. (Original) A data format, stored in a computer readable medium, comprising:

- an internet protocol (IP) address portion including an address associated with a particular node on a wireless network;

- a vapor level data indicator portion including an indicator that data pertaining to a measurement of vapor material remaining in a tank of a particular aircraft is being sent in a data packet; and

- a vapor level data portion including the measurement of how much vapor material remains in the tank of the particular aircraft.

48. (Previously Presented) A method for simulating the creation of an aerial message, the method comprising:

- providing a plurality of physical aircraft;

- providing a plurality of graphical images representative of the physical aircraft; and

- correlating each of the plurality of graphical images to one of the plurality of physical aircraft, wherein each of the plurality of graphical images displays a vapor puff graphic at the same time as its corresponding physical aircraft emits a vapor puff.

49.-52. Canceled

53. (Previously Presented) A method of creating an aerial message file using a plurality of aircraft, the method comprising:

- receiving an aerial message from a user, wherein the received aerial message includes one or more portions and wherein the received aerial message is used to create an aerial message file;

- opening an output file;

- for each portion of the aerial message, scanning one or more data files for data corresponding to the portion, wherein the corresponding data is copied to the open output file;

- for each aircraft, calculating a number of vapor puffs required by the aircraft to produce the aerial message, wherein the number of vapor puffs required is copied to the open output file; and

- closing the output file, wherein the output file is the aerial message file.

54. (Original) A method for repositioning aircraft in a formation of multiple aircraft, the method comprising:

providing a network address to each of a plurality of aircraft, wherein the network address uniquely identifies each of the plurality of aircraft on a network;

providing an identifier specifying a position of each of the plurality of aircraft in a flight formation;

in response to a user selecting an option from a main computer to switch the positions of two or more of the plurality of aircraft, redirecting data packets to the two or more of the plurality of aircraft based on a new position of the two or more aircraft in the flight formation, wherein the data packets are redirected without requiring pilots of the two or more of the plurality of aircraft to alter any settings in the two or more of the plurality of aircraft.

55. Canceled

56. (Previously Presented) A method of forming characters for an aerial message, the method comprising:

providing an option for a user to specify a pattern of vapor puffs, wherein the specified pattern of vapor puffs forms a desired character;

receiving the pattern of vapor puffs specified by the user;

translating the received pattern of vapor puffs to a binary representation of the desired character;

saving the binary representation of the desired character in a first computer file;

adding the binary representation of the desired character to a second computer file, wherein the second computer file includes binary representations for one or more characters; and

creating a graphic file of the desired character.

57. (Previously Presented) The method of Claim 56, wherein providing an option for a user to specify a pattern of vapor puffs includes displaying a grid of checkboxes, the user selecting a checkbox from the grid of checkboxes to represent a desired vapor puff.

58. (Previously Presented) The method of Claim 56, wherein the desired character is a graphical image.

59. (Previously Presented) The method of Claim 56, wherein the desired character is a symbol from a language.

60. (Original) The method of Claim 57, wherein the user selects checkboxes using a computer touch screen.

61. (Original) The method of Claim 57, wherein the user selects checkboxes using a pointing device.

62. (Original) The method of Claim 57, wherein the user selects checkboxes using a mouse device.

63. (Original) The method of Claim 57, wherein the user selects checkboxes using voice commands.

64. (Original) The method of Claim 57, further comprising in response to the user selecting checkboxes from the grid of checkboxes, displaying a graphical representation of a vapor puff corresponding to the selected checkboxes.

65. (Previously Presented) The method of Claim 56, further comprising displaying the pattern of vapor puffs as a graphical representation while the user is specifying the pattern of vapor puffs, whereby the user sees the character being formed by the specified pattern of vapor puffs.

66. (Original) The method of Claim 65, wherein the displayed graphical representation is presented as seen by a viewer on the ground.

67. (Original) The method of Claim 65, wherein the displayed graphical representation is presented as an aerial view.

68.-72. Canceled

73. (Previously Presented) A system for creating aerial messages using a plurality of aircraft, the system comprising:

a master controller, wherein the master controller is a node on a wireless local area network (LAN) and is configured to transmit data over the LAN to a plurality of slave controllers and to receive data from each of the plurality of slave controllers; and

a plurality of slave controllers, each slave controller designed to be located in one of a plurality of aircraft, wherein each of the slave controllers is a node on the wireless LAN and is configured to receive data from and transmit

data to the master controller; each of said slave controllers having at least one output control line for operating a vapor puff creation system;

wherein the data transmitted by said master controller to said slave controller comprises instructions to control vapor puff creation systems and the data received from said plurality of slave controllers comprises status information.

74. (Previously Presented) The system of Claim 73 further comprising a logic and processing unit configured to provide a user interface for creating aerial messages using a plurality of aircraft, wherein the logic and processing unit is located in the master aircraft and sends data to and receives data from the master controller;

75. (Previously Presented) The system of Claim 73 wherein the data indicates whether a puff was emitted by the aircraft.

76. (Previously Presented) The system of Claim 73 wherein the data indicates an amount of vapor material remaining in the aircraft.

77. (Previously Presented) The system of Claim 73 wherein the data indicates whether the aircraft is actively on the network.

78. (Previously Presented) The system of Claim 73 wherein the data indicates whether a pump was turned on.

79. (Previously Presented) The system of Claim 73 wherein the data indicates whether a pump was turned off.

80. (Previously Presented) The system of Claim 73 wherein the data indicates a puff is to be produced.

81. (Previously Presented) The system of Claim 73 wherein the data indicates a time delay.

82. (Previously Presented) The system of Claim 73 wherein the data indicates a pump is to be turned on.

83. (Previously Presented) The system of Claim 73 wherein the data indicates a pump is to be turned off.

84. (Previously Presented) A system for facilitating coordination of action between at least three aircraft to create aerial messages comprising:

a plurality of controllers, each controller designed to be carried by an aircraft, and each controller having a processor and associated electronic data storage module;

a master controller, which may be one of the plurality of controllers or may be separate;

a communication channel between the master controller and each of the controllers on each of the at least three aircraft; and

software stored in each of the controllers to permit instructions from the master controller relating to the creation of aerial messages to be processed by the controller and implemented automatically.

85. (Previously Presented) The system of Claim 84, wherein the action attribute comprises a puff duration measurement.

86. (Previously Presented) The system of Claim 84, wherein the action attribute identifies a position of the aircraft in a formation.

87. (Previously Presented) The system of Claim 84, wherein the action attribute comprises a formation delay.

88. (Previously Presented) The system of Claim 84, wherein the action attribute comprises an aircraft speed.

89. (Previously Presented) The system of Claim 84, wherein the action attribute comprises an aerial message.

90. (Previously Presented) A system for repositioning aircraft in a formation of multiple aircraft comprising:

a network address to each of a plurality of aircraft, wherein the network address uniquely identifies each of the plurality of aircraft on a network;

an identifier specifying a position of each of the plurality of aircraft in a flight formation;

data packets to the two or more of the plurality of aircraft comprising the network address and data based on the position of the aircraft in the flight formation; and

an option selected by a user from a main computer to switch the positions of two or more of the plurality of aircraft; wherein the data packets are redirected based on a new position of the two or more aircraft in the flight formation, and

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the data packets are redirected without requiring pilots of the two or more of the plurality of aircraft to alter any settings in the two or more of the plurality of aircraft.

91. (Previously Presented) The system of Claim 90 wherein the data comprises an indicator to produce a vapor puff.

92. (Previously Presented) The system of Claim 90 wherein the data comprises an indicator not to produce a vapor puff.

93. (Previously Presented) The system of Claim 90 wherein the data comprises a duration measurement.

94. (Previously Presented) The system of Claim 90 wherein the data comprises a time delay measurement.

95. (Previously Presented) The system of Claim 90 wherein the data comprises an indicator to control operation of a pump.